

electrolyte between electrodes decreases, the electric power efficiency improves.

Because the electrolyte jetted from the jet opening contacts an conductor applied the voltage, we can supply large electric current to the steel strip through the jetted electrolyte.

Therefore, the electric current density of the steel strip is large and the steel strip is descaled rapidly.

Providing many electrodes improves the speed of the descaling because the electric current density in the steel strip increases.

Another features of the present invention is that the descaling apparatus further has jet pressure adjustment of the jetted electrolyte.

By adjusting the jet pressure of the electrolyte, the waving and the flexure of the steel strip is prevented, and we can arrange the electrodes close to the steel strip.

Because the electrodes are moved closer to the steel strip, a voltage drop between the electrodes and the steel strip become lower, the electric power for the descaling decreases.

By using the above-mentioned the descaling apparatus, the steel strip manufacturing apparatus improves the electric

power efficiency and the processing speed, and the manufacturing apparatus becomes small.

4. Brief Description of the Drawings

Fig.1 shows the stainless steel strip manufacturing apparatus of the first example.

Fig.2 shows neutral salt solution electrolysis part of Fig.1 in greater detail.

Fig.3A and Fig.3B shows the electrode in detail and in plan view, respectively.

Figs.4A to 4D show normal steel strip manufacturing apparatus of the second example.

Fig.5A and Fig.5B show another example of electrode in detail and in sectional view, respectively.

Fig.6 shows an example of power supply systems and jet adjusting systems.

Fig.7 shows an example of electrodes arrangement in plan view.

5. Embodiments

(Example 1)

The stainless steel strip manufacturing apparatus according to the first embodiment of the present invention is explained with respect to Fig.1.

The steel strip 1 unwound from the pay off reel 2 is rolled by the cold rolling mill 3 and is annealed in the annealing hearth 4 for the heat characteristic improvement of the ductility and the like. At this time, a scale that is a

thin oxide film such as a chrome oxide, an iron oxide and so on, is formed on the surface of the steel strip 1 and causes a quality declination .

The rolled steel strip 1 passes through the cooling hearth 5 and passes through the neutral salt solution electrolysis part 6 that is the first electrolysis part. In the neutral salt solution electrolysis part 6, with a neutral salt solution 20 as a sulfate sodium solution, a chrome oxide is eliminated.

Next, the steel strip 1 passes through the alkali solution electrolysis part 8 that is the middle electrolysis cell via washing tank 7. Next, the steel strip 1 passes through the nitrate solution electrolysis part 10 via washing tank 9. In the alkali solution electrolysis part 8, with a sodium hydroxide solution, a very small quantity of oxide such as a copper oxide ,niobium oxide is eliminated. In the nitrate solution electrolysis part 10, with a nitrate solution, an iron oxide is eliminated. It is possible to substitute the nitric acid and hydrofluoric acid for the nitrate solution. In accordance with the kind of stainless steel, the processing is possible to perform without the alkali solution electrolysis part 8 and washing tank 9. The processing temperature and the density of the electrolyte solution are the same as the conventional processing.

Finally, the steel strip 1 is wound to the reel 14 via the washing tank 11, the drier 12 and the skin pass roller 13.